

**REMARKS**

Claims 1 and 3-11 are now present in this application.

Claim 1 has been amended, and claim 2 has been cancelled without prejudice or disclaimer. Reconsideration of the application, as amended, is respectfully requested.

**Rejection under 35 USC 102(e)**

Claims 1 and 10 stand rejected under 35 USC 102(e) as being anticipated by TEWS et al., U.S. Publication 2003/0020110. This rejection is respectfully traversed.

By way of the present amendment, the limitations of claim 2 have been incorporated into independent claim 1. Since the 35 USC 102(e) rejection has not been applied against claim 2, it is respectfully submitted that this rejection has been rendered moot.

**Rejection under 35 USC 103**

Claims 2-5 stand rejected under 35 USC 103 as being unpatentable over TEWS et al. and CHEN et al., U.S. Patent 6,716,696, and further in view of HEO et al., U.S. Patent 6,398,904. This rejection is respectfully traversed.

Claim 6 stands rejected under 35 USC 103 as being unpatentable over TEWS et al. in view of CHEN et al. This rejection is respectfully traversed.

Claim 7 stands rejected under 35 USC 103 as being unpatentable over TEWS et al. in view of SCHREMS et al., U.S. Patent 6,777,303. This rejection is respectfully traversed.

Claim 8 stands rejected under 35 USC 103 as being unpatentable over TEWS et al. in view of WURSTER et al., U.S. Patent 6,828,191. This rejection is respectfully traversed.

Claim 9 stands rejected under 35 USC 103 as being unpatentable over TEWS et al. and WURSTER et al., and further in view of SCHREMS et al. This rejection is respectfully traversed.

Claim 11 stands rejected under 35 USC 103 as being unpatentable over TEWS et al. This rejection is respectfully traversed. Although the Examiner has cited U.S. Publication 2003/00204110, it is believed that the Examiner intended to cite U.S. Publication 2003/0020110.

It is respectfully submitted that none of the references utilized by the Examiner either teach or suggest the etching steps for forming a bottle-shaped trench, as set forth in independent claim 1.

Independent claim 1 recites forming a mask layer to fill the bottom of the trench, filling de-ionized water in the trench, diffusing an etchant in the trench by means of the de-ionized water, thereby etching the semiconductor substrate not covered by the masking layer, wherein the mask layer protects the bottom of the trench during the etching, and removing the mask layer to form the bottle-shaped trench. It is therefore clear that the trench sidewalls which are not covered by the masking layer are etched by diffusion of the etchant in the de-ionized water.

The Examiner's attention is drawn to Figs. 3C and 3D, page 8, lines 18-30, and page 9, lines 1-11. By filling the de-ionized water in the trench, the etchant can be thoroughly diffused from the top of the trench to the bottom thereof by means of the de-ionized water. Accordingly, the semiconductor substrate around the top of the trench is etched first for a longer etching time to form a slightly wider etching area than the bottom, thus forming the bottle-shaped trench tapered toward the bottom.

Nevertheless, Chen teaches that the semiconductor substrate is etched to form a bottle-shaped trench having an enlarged bottom portion and this etching process is carried out with a diluted ammonia solution. (see column 3, lines 46-51). Clearly, Chen fails to disclose two-stage trench etching, such as filling de-ionized water and then diffusing etchant therein.

It is therefore respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the method of independent claim 1 and its dependent claims. It is further noted that the dependent claims set forth features of the invention which are additionally allowable. Accordingly, reconsideration and withdrawal of the 35 USC 103 rejection are respectfully requested.

### Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

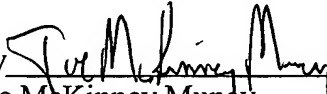
Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: August 22, 2005

Respectfully submitted,

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